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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10.002,724	10/25/2001	Ruben P. Madrid	TI-27987	2847

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EXAMINER

MALDONADO, JULIO J

ART UNIT PAPER NUMBER

2823

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,724

Applicant(s)

MADRID ET AL.

Examiner

Julio J. Maldonado

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 05 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-13 in Paper No. 4 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Exposito et al. (U.S. 6,087,202) in view of Miyazaki (U.S. 2002/0008316 A1).

In reference to claims 1 and 8, Exposito et al. (Figs.1-9) in a related method to form a plurality of ball grid array teach providing a plurality of chips (103); coupling the chips (103) to a first side of a substrate (102); attaching a plurality of solder balls (107) to a second side of the substrate (102); and cutting the substrate to produce the ball grid array (column 2, line 35 – column 3, line 53).

Exposito et al. fail to teach the plurality of chips comprise a flip chips. However, Miyazaki (Figs.2A-2D) in a related packaging method teaches providing a plurality of flip chips (2); and coupling the flip chips (2) to a first side of a substrate (1) ([0030 – [0039]). Therefore, it would have been obvious at the time the invention was made to combine

the teachings of Miyazaki and Exposito et al. to enable the step of attaching the chips of Exposito et al. to performed.

In reference to claims 4-6, the combined teachings of Exposito et al. and Miyazaki inherently teach wherein coupling the flip chips to the first side of the substrate comprises soldering a plurality of solder bumps coupled to the flip chip to a plurality of solder pads on the first side of the substrate; wherein encapsulating the flip chips with the molding comprises encapsulating the flip chip by utilizing a transfer molding process; and wherein encapsulating the flip chip with the molding comprises encapsulating the flip chip with an epoxy (Miyazaki, [0030 – [0039]).

In reference to claim 7, the combined teachings of Exposito et al. and Miyazaki teach wherein cutting the substrate comprises cutting the substrate in a first direction; and after cutting the substrate in the first direction cutting the substrate in a second direction substantially perpendicular to the first direction (Exposito et al., Figs.7 and 9).

4. Claims 2, 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Exposito et al. (U.S. 6,087,202) in view of Miyazaki (U.S. 2002/0008316 A1) as applied to claims 1, 4-8 and 10-13 above, and further in view of Glenn et al. (U.S. 6,309,943 B1).

The combined teachings of Exposito et al. and Miyazaki substantially teach all aspects of the invention teach wherein the plurality of flip chips comprises forming a plurality of integrated circuit dies on a wafer, and coupling a plurality of solder bumps to the integrated circuit dies (Exposito, Fig.8, column 1, lines 14 – 21, and column 3, lines 43 – 46). The combined teachings of Exposito et al. and Miyazaki fail to teach scribing

the wafer to define edges of the flip chip; and transferring the ball grid array package to a shipping tray. However, Glenn et al. (Fig.1) in a related method form a packaging structure teach a wafer (10) with integrated circuits (12), and scribing the wafer (10) to define edges of the circuit array (column 1, lines 15 – 25). Glenn et al. also teach (in Fig.9) after forming the packaging structure, transferring said structure to a shipping tray (column 12, lines 36 – 46). Therefore, it would have been obvious to combine the teachings of Glenn et al. with the teachings of Exposito et al. and Miyazaki to enable scribe lines on the wafer to define edges of the flip chip, and transferring the ball grid array to a shipping tray as taught by Glenn et al.

Conclusion

5. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Art Unit: 2823

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

JMR

JMR

5/13/03

George Fourson
George Fourson
Primary Examiner